

WHAT IS CLAIMED IS:

1. An illumination system for illuminating a scan region on an object, comprising:

a hollow reflector having an interior reflective surface and an exit aperture;

5 a light source positioned within said hollow reflector, said light source producing a plurality of light rays, some of the light rays produced by said light source being reflected by the interior reflective surface of said hollow reflector before passing through the exit aperture;

10 a first reflector positioned adjacent a first side of the exit aperture of said hollow reflector; and

15 a second reflector positioned adjacent a second side of the exit aperture of said hollow reflector, said first and second reflectors being positioned in non-parallel, spaced-apart relation to one another, said first and second reflectors at least partially collimating light passing through the exit aperture of said hollow reflector to form a collimated beam.

20

2. The illumination system of claim 1, wherein said hollow reflector comprises a body having a generally cylindrically shaped interior wall that defines the interior reflective surface and wherein the exit aperture comprises a generally elongate axial opening in the interior wall of said body.

5

3. The illumination system of claim 1, wherein the interior reflective surface of said hollow reflector comprises a diffusing reflecting surface.

4. The illumination system of claim 1, wherein the

interior reflective surface of said hollow reflector is coated with a diffusing reflecting material.

5. The illumination system of claim 1, wherein said light source comprises a fluorescent lamp.

6. The illumination system of claim 1, wherein said first reflector comprises a generally planar reflective surface.

7. The illumination system of claim 1, wherein said second reflector comprises a generally planar reflective surface.

8. The illumination system of claim 1, wherein said first and second reflectors comprise specular reflecting surfaces.

9. The illumination system of claim 1, wherein said first and second reflectors are coated with a specular reflecting material.

10. An illumination system for illuminating a scan region on an object, comprising:

5 a body having an interior wall defining a generally cylindrically shaped interior reflective surface, the interior wall of said body also defining a generally elongate axial opening therein located at a first radial position on the interior wall of said body;

10 a light source positioned within the generally cylindrically shaped interior reflective surface defined by said body;

a first reflector positioned adjacent a first

side of the elongate axial opening defined by the interior wall of said body; and

15                   a second reflector positioned adjacent a second side of the elongate axial opening defined by the interior wall of said body, said first and second reflectors being positioned in non-parallel, spaced-apart relation to one another, said first and second reflectors at least partially collimating light passing through the exit aperture of said hollow reflector to form a collimated beam.

20

11. The illumination system of claim 10, wherein said light source comprises a fluorescent lamp.

12. The illumination system of claim 10, wherein said first reflector comprises a generally planar reflective surface.

13. The illumination system of claim 10, wherein said second reflector comprises a generally planar reflective surface.

14. The illumination system of claim 10, wherein the interior reflective surface of said body comprises a diffusing reflecting surface.

15. The illumination system of claim 10, wherein the interior reflective surface of said body is coated with a diffusing reflecting material.

16. The illumination system of claim 10, wherein said first and second reflectors comprise specular reflecting surfaces.

17. The illumination system of claim 10, wherein said first and second reflectors are coated with a specular reflecting material.

18. An illumination system for illuminating a scan region on an object, comprising:

5 hollow reflector means for defining an interior reflecting surface and an exit aperture;

light source means positioned within said hollow reflector means for producing a plurality of light rays; and

10 collimating reflector means positioned adjacent the exit aperture defined by said hollow reflector means for at least partially collimating light exiting the exit aperture defined by said hollow reflector means to form a collimated beam.

19. The illumination system of claim 18, wherein said collimating reflector means comprises first reflecting means and second reflecting means positioned in generally non-parallel, spaced-apart relation.

20. A method for illuminating a scan region on an object, comprising:

5 providing a hollow reflector having an interior reflecting surface and an exit aperture;

providing a collimating reflector adjacent the exit aperture of the hollow reflector; and

10 directing a plurality of light rays onto the interior reflecting surface of the hollow reflector, the interior reflecting surface reflecting some of the light rays through the exit aperture in the hollow reflector, the collimating reflector at least partially collimating light exiting the exit aperture

in the hollow reflector to form a collimated beam.